1016-142 Falls and Bradyarrhythmic Disorders

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Background: Falls are a major health care and cost priority. Eight percent of persons aged ≥ 70 years attend the Emergency Department each year because of a fall. One-third of fallers are hospitalised. The cost of falls to the US health care system in 1999 was 32.4 billion dollars. In patients with orthostatic hypotension (OH) and cardioinhibitory carotid sinus syndrome (CICSS), 20-30% of cardiovascular episodes present as falls and not syncope either because of amnesia for loss of consciousness (LOC) or balance instability during hypotension. In patients with CICSS who fall cardiac pacing reduces subsequent falls by over 70%.[1] Other bradyarrhythmic disorders - atrioventricular block (AVB) and sick sinus syndrome (SSS) are particularly prevalent in older adults, but the incidence of falls in this group is not known. The purpose of this study is to compare the incidence of falls in older adults with AVB and SSS with case controls.

Methods: Consecutive subjects who had pacemakers implanted were screened. Those with AVB and SSS and who were not cognitively impaired (able to provide accurate history) underwent further detailed assessment. Consecutive age and gender-matched admissions to coronary care unit who did not have underlying conduction disease were similarly studied.

Results: Eighty-one subjects were included, 31 paced for bradyarrhythmic disorders (17 male; mean age 77.1 ± 7.6 years)(AVB 18, SSS 13) and 50 controls (26 male; mean age 77± 8.5 years). There were 134 (range 0-100) falls in the bradyarrhythmic group and 12 (range 0-2) in the control group. Twelve (39%) of the paced patients reported at least one fall in the previous 12 months compared to 18% of the controls; p=. 06[2]. There was no significant difference between the 2 groups with respect to any recognised risk factors for falls.

Conclusion: Prospective studies of symptom-rhythm correlation in bradyarrhythmic disorders are difficult. This is the first series that clearly shows a significant association between bradyarrhythmic disorders and falls.

1. Carotid sinus syndrome: A modifiable risk factor for non-accidental falls in older adults. Kenny RA, Richardson DA, Steen N, et al; JACC (in press November 2001)

2. Fisher's exact test

1016-143 24-Hour Ambulatory Electrocardiography Is Unhelpful in the Investigation of Older Persons With Recurrent Falls

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Background: 24-hour ambulatory ECG is often used to assess fallers. There is little evidence that the investigation aids diagnosis. We prospectively compared 24-hour ECG in older recurrent fallers and controls.

Methods: 129 consecutive patients, age >65, attending the ER, with ≥2 falls in last year. 103 age and sex-matched case controls with no falls in last 3 years. 24-hour ECG recordings analysed for prevalence of abnormalities (Bass criteria) and correlation between symptoms and abnormalities.

Results: Mean age fallers 76.7 years (SD±6.3) vs 75.0 (SD±5.7) p=0.04. Male 42(33%) vs 41(40%), p=0.272. No significant differences in prevalence of IHD, 35 (27%) in fallers vs 19 (18%), p=0.159, atrial fibrillation 9 (7%) vs 4 (4%), p=0.395, beta blocker use 30 (23%) vs 14 (14%), p=0.066, calcium antagonists 24 (19%) vs 12 (12%), p=0.201, AV blocking agents 5 (4%) vs 2 (2%), p=0.467. Fallers more likely to have hypertension 47 (36%) vs 23 (22%), p=0.022, and diabetes 18 (14%) vs 5 (5%), p=0.026. Abnormalities found in 67 (52%) of recordings in fallers and 41 (40%) of controls, p=0.085. No significant differences in the prevalence of different abnormalities found - see Table. Mild symptoms occurred in 11 (8%) of fallers vs 13 (13%) of controls, p=0.309. No symptoms correlated with arrhythmia. No patient fell during monitoring.

Conclusion: Multiple abnormalities are present on 24-hour ECG recordings in all subjects aged ≥65 years. 24-hour ECG does not help in the investigation of recurrent falls.

Prevalence of Abnormalities in Fallers and Controls

	Fallers (n=129)	Controls (n=103)	Fishers Exact Test
Pauses ≥2 seconds	8 (6%)	8 (8%)	0.795
Ventricular Tachycardia ≥3 beats	5 (4%)	3 (3%)	1.000
Mobitz II heart block	1 (1%)	0 (0%)	1.000
Bradycardia < 30bpm	0 (0%)	1(1%)	0.444
Bradycardia 30-39bpm	10 (8%)	5 (5%)	0.431
Paroxysmal Supraventricular Tachycardia ≥10 beats at a rate ≥150bpm	14 (11%)	13 (13%)	0.686
Ventricular ectopy ≥30 beats / hr	45 (35%)	24 (23%)	0.061
Paroxysmal Atrial Fibrillation	6 (5%)	4 (4%)	1.000

1016-144 Incidence and Predictors of Atrial Flutter/Fibrillation in the General Population

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BACKGROUND: Previous epidemiologic and clinical research have advanced our understanding of atrial flutter (AFL) and atrial fibrillation (AFIB). Unlike AFL and AFIB however, nothing but isolated case reports of atrial flutter/fibrillation (AFL/FIB) have appeared in the literature. We determined the incidence and predictors of AFL/FIB in the general population. **METHODS:** The Marshfield Epidemiologic Study Area (MESA); a database that captures nearly all medical care among its ~60,000 residents was used to ascertain all new cases of AFL/FIB diagnosed from 7/1/91 to 6/30/95. To identify predisposing risk factors, we employed an age- and gender-matched case-control study design using 8 additional variables. Patients with AFL and/or AFIB but without AFL/FIB were excluded by designing an strict ECG diagnostic criteria for AFL/FIB that required prominent flutter/fibrillatory waves ("f/f") > 1.0 mm in amplitude with variable "f" wave morphology AND highly irregular "f-f" intervals with atrial rates of >340 beats per minute. Quality assurance methods to ensure data integrity were implemented and exceeded 98%. **RESULTS:** A total of 169 new cases of AFL/FIB were diagnosed for an overall incidence rate of 82 per 100,000 person-years. Age group analysis revealed incidence rates ranging from 6.25/100,000 in subjects less than 50 years old to 538/100,000 in persons 80 and beyond. Adjusted for age, the incidence rate of AFL/FIB in men (107/100,000 person-years, 95% CI, 1.02 to 1.49) was 1.7 times that of women (66/100,000 person-years, 95% CI, 0.44 to 0.73). Compared to controls, patients with AFL/FIB were twice as likely to have had previous cerebrovascular events (RR 2.27, 95% CI, 1.12 to 4.62) or congestive heart failure (RR 1.92, 95% CI, 0.98 to 3.76). **CONCLUSIONS:** 1) This study, the first epidemiologic investigation of AFL/FIB, suggests AFL/FIB is much more common than previously appreciated. 2) If our findings were applicable to the entire U.S. population, we estimate 175,000 new cases of AFL/FIB diagnosed in this country annually. 3) At highest risk of developing AFL/FIB are men, the elderly and individuals with previous cerebrovascular disease or congestive heart failure.

1016-145 What Is the Optimal Anticoagulation Intensity to Prevent Stroke in Patients With Atrial Fibrillation >=75 Versus <75 Years Old? The AnTicoagulation and Risk Factors In Atrial Fibrillation (ATRIA) Study

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BACKGROUND: Warfarin effectively reduces risk of ischemic stroke in patients with nonvalvular atrial fibrillation (NVAF). A target INR of 2.0-3.0 is currently recommended, but whether elderly patients (>=75 years) would achieve the same benefit at a lower INR is controversial.

METHODS: We conducted a nested case-control study of the risk of stroke by INR within the ATRIA cohort of 13,559 NVAF patients. In this cohort, we identified anticoagulated case patients with validated ischemic stroke and matched anticoagulated control subjects. We used conditional logistic regression to assess the independent association between INR and stroke stratified by age (>=75 vs. <75 years) after adjusting for other stroke risk factors in NVAF (prior stroke, hypertension, diabetes, heart failure, and coronary disease).

RESULTS: Among 13,559 NVAF patients, 172 anticoagulated cases of ischemic stroke and 860 matched anticoagulated controls without stroke were identified. The majority of strokes occurred at INRs <2.0. The INRs at the time of admission in stroke patients follows:

INR in Cases:	<1.5	1.5-1.9	2.0-2.4	2.5-3.0	>3.0
<75 years (n=79)	30%	38%	14%	13%	5%
>=75 years (n=93)	37%	24%	14%	12%	13%

Compared to INR 2.0-3.0, INR 1.5-1.9 was associated with an adjusted 3.6-fold (95% CI: 1.9-6.9) increased odds of stroke in patients <75 years, and an adjusted 2.0-fold (1.1-4.0) increased odds of stroke in patients >=75 years. In both age groups, an INR <1.5 was associated with a 6-to-7-fold increased odds of stroke.

CONCLUSION: An INR <2.0 does not provide effective protection against ischemic stroke among elderly or younger patients with NVAF.

POSTER SESSION

1037 Heart Failure: Arrhythmias/Genetics

Sunday, March 17, 2002, Noon-2:00 p.m.

Georgia World Congress Center, Hall G

Presentation Hour: Noon-1:00 p.m.

1037-153 Antiarrhythmic Effect of Nonexcitatory Signal Delivery in Patients With Severe Left Ventricular Dysfunction

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Objective: Preliminary data in animal models and patients have suggested that non-excitatory signal (NES) delivery improve left ventricular function. In this study we report the effect on electrocardiographic parameters and arrhythmias by chronic NES delivery in patients with sever left ventricular (LV) dysfunction.